Food Resilience Through Root and Tuber Crops in Upland and Coastal Communities of the Asia-Pacific (FOODSTART+)

Full Project Proposal
International Potato Center (CIP)

Prepared for:
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Summary Sheet

Grant Title	Food Resilience Through Root and Tuber Crops in Upland and Coastal Communities of the Asia-Pacific (FOODSTART+)

Recipient	International Potato Center (CIP)

CRP(s) Links	RTB, CCAFS and HumidTropics

Grant contribution to IDOs of CRP	IDOs 2, 3, and 4 of CGIAR Research Program -RTB; IDOs 1, 2 and 4 of CCAFS

Grant Contribution to SLOs of the SRF	Will contribute to all 4 of the SLOs of the SRF

Beneficiary Countries	China, India, Indonesia, PNG/Pacific islands, Philippines, Vietnam

Proposed EC Funding **IFAD Co-financing** **Other Sources of Funding** **Total Programme Cost**	

Programme Duration	3 years

Target Group and Benefits	End-users/beneficiaries will be small-scale, low-income farming households; especially females and youth in these households in tropical/sub-tropical and coastal communities where root and tuber crops (RTCs) are locally important for food security. Particularly those which are under increased threat from climate change, natural disasters and socio-economic risks. Next users/beneficiaries are in-country implementing organizations of IFAD investment projects, including their respective partners - national and local government agencies, NGOs, business development service providers and community groups and IFAD country offices/programmes.

Rural Development Projects to be linked with the Grant	In-country IFAD investment projects being implemented in subnational geographic sites where RTCs have existing or potential roles for enhancing food resilience. In addition, IFAD grant projects (e.g. other CGIAR Centers) which can integrate RTC innovations and/or adapt best practices in food security R4D, and IFAD country programmes via inputs to COSOPs and investment project design missions.

Supervision Arrangements	IFAD Asia-Pacific Division with CPMs/CPOs in respective countries

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ACRONYMS

AR4D	AGRICULTURAL RESEARCH FOR DEVELOPMENT
CCAFS	CLIMATE CHANGE AGRICULTURE AND FOOD SECURITY (CGIAR RESEARCH PROGRAM)
CIAT	INTERNATIONAL CENTER FOR TROPICAL AGRICULTURE
CIP	INTERNATIONAL POTATO CENTER
COSOP	COUNTRY STRATEGIC OPPORTUNITIES PROGRAM
CPM/CPO	COUNTRY PROGRAMME MANAGER/OFFICER
CHARMP2	CORDILLERA HIGHLANDS AGRICULTURE AND RESOURCE MANAGEMENT PROJECT PHASE 2 (PHILIPPINES)
FAO	FOOD AND AGRICULTURE ORGANISATION
FISHCORAL	FISHERIES, COASTAL RESOURCES AND LIVELIHOODS PROJECT (PHILIPPINES)
FOODSTART	FOOD SECURITY THROUGH ASIAN ROOTS AND TUBERS
HARIP	HUNAN AGRICULTURAL RURAL INFRASTRUCTURE IMPROVEMENT PROJECT (CHINA)
IDO	INTERMEDIATE DEVELOPMENT OUTCOMES
IFAD	INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT
INREM	INTEGRATED NATURAL RESOURCES AND ENVIRONMENTAL MANAGEMENT PROJECT (PHILIPPINES)
NERCOMP	NORTH EASTERN REGIONAL COMMUNITY RESOURCE MANAGEMENT PROJECT (INDIA)
OFSP	ORANGE FLESHED SWEETPOTATO
RTB	ROOTS TUBERS AND BANANAS (CGIAR RESEARCH PROGRAM)
RTC	ROOT AND TUBER CROPS
RUMEPP	RURAL MICROENTERPRISE PROMOTION PROJECT (PHILIPPINES)
SO	STRATEGIC OBJECTIVE (CIP)
SLO	SYSTEM LEVEL OUTCOMES
SOLID	SMALLHOLDER LIVELIHOOD DEVELOPMENT PROGRAMME, MALUKU (INDONESIA)
SRDP	SUSTAINABLE RURAL DEVELOPMENT PROJECT (VIETNAM)

I. BACKGROUND

1) The food security agenda in Asia-Pacific is dominated by grain crops, rice and wheat, despite the region being the leading producer and consumer globally of root and tuber crops (RTC)[1]. Potato, sweetpotato and cassava, plus a range of locally important yam and aroid species, are staple foods for poor farming households in many less favourable agro-ecologies and remote communities, frequently home to ethnic minorities. RTCs contribute directly to food security through their production in smallholder farming systems (food availability). Furthermore, they are directly consumed in a variety of traditional fresh and processed forms (food utilization). Both of these elements essential to food security almost universally fall under the responsibility of females within these households, especially in the highland communities within the Asia-Pacific region. In addition, RTCs play an increasing role in food security as a source of income (food access) via sales to both urban fresh markets and for processing in a range of food and non-food industries. Opportunities for both women and men to participate in these value chains are variable and require much greater research and development attention. RTCs are increasingly recognized as healthy, nutritious and safe vegetables in urban markets (for example orange-fleshed sweetpotato - OFSP), casting aside their previous image as "poor persons' food", while being positioned as functional foods and high-demand organic products. Meanwhile, their participation as an industrial raw material is expanding beyond starch and animal feed to take advantage of their more valuable nutritional characteristics (e.g. purple sweetpotato

Box 1**: RTCs and post-disaster food security: Case of typhoon Haiyan in Leyte, Philippines**

After the typhoon, the population in Dulag, Leyte, where sweetpotato (SP) and taro are grown by smallholders, experienced much lower food insecurity. Traditionally, Dulag supplies SP and taro to Tacloban and neighbouring towns. In the most devastated areas, only SP stood green and robust in the fields and uplands amidst 95% fallen coconuts and trees, and dried-up grain fields. When food supply was most difficult in the first few weeks after the typhoon, harvests of SP and taro provided local people with food, while communications and transport disruption made marketing the produce to Tacloban impossible. Farmers then planted SP in areas where coconut trees were felled by the storm. During the first 2-6 months post-Haiyan, rehabilitation efforts (public, private and NGO sectors) organised distribution of SP planting materials from PhilRootCrops to coconut farmers (the major industry in the region) for food security. Surveys identified the most food vulnerable areas, the potential SP/RTC source of planting material production and propagation, and the immediate sources of planting material supply for rehabilitation (i.e. towns south of Leyte, Southern Leyte). Together with the available planting materials at the PhilRootcrops-VSU station, a simplified database of sources of planting materials, farmers, varieties, and available dates was prepared. This database has recently been improved to serve as tracker and a monitoring device. Thirty start-up nurseries of SP are now established in Leyte and Southern Leyte, and 8 for cassava.

Photo: sweetpotato alongside coconut tress destroyed by typhoon Haiyan. Taken 28 November 2013, 20 days after the typhoon. Source for text and photo: J. Roa, PhilRootCrops - Visayas State University,

[1] FAOSTAT (2013). **faostat**.fao.org. Rome.

noodles and other value-added products in China, Indonesia and Philippines, as well as OFSP in India, Indonesia and Philippines). The actual and potential diversity of end-uses, in addition to their direct food security role through on-farm and local market consumption, are major advantages of RTCs in the Asia-Pacific region.

2) RTCs have also historically served as buffer crops in situations of acute food vulnerability following extreme weather events and natural and socio-economic crises (Box 1). This role is vital in the Asia-Pacific where high population density makes natural or human created crises especially disastrous. High population densities also lead to low access to productive resources, severe income disparities and socio-economic marginalization, in an area of the world recognized for its persistent high levels of gender inequality. Food vulnerability is a key aspect of overall food insecurity, which has been under-examined in international agricultural research and development. Adapting the definition of the Food and Agriculture Organization (FAO) of the United Nations, food vulnerability or instability refers to negative changes in food availability, access and utilization, especially of nutritious foods, which is brought about by socioeconomic or environmental stresses and shocks. In other words, whereas food (in) security is often seen as an outcome of a particular set of conditions, food vulnerability focuses attention on the dynamic and often unstable aspects of availability, access and utilization over time. Correspondingly, food resilience, for this study, can be understood, adapting a definition of Pingali et al[2], as a measure of the ability of households and communities to maintain existing stability of food supply and use or adapt to a new situation (of supply and use), without undergoing catastrophic changes in their basic functioning.

3) This proposed grant project, Food Resilience Through Root and Tuber Crops in Upland and Coastal Communities of the Asia-Pacific (FoodSTART+), complements, builds on, and expands the scope of the on-going IFAD-supported Food Security Through Asian Root and Tuber Crops (FoodSTART). Launched in 2011 as an IFAD and CIP-led regional partnership, FoodSTART has generated and systematized evidence on RTCs' contribution to the food security of low income male and female agricultural producers and consumers, with a particular focus on indigenous peoples. More importantly, FoodSTART has developed and promoted methods, tool and best practices for IFAD investment projects to better target and facilitate impact at scale for outcome-focused RTCs innovations. The FoodSTART food security framework[3] provided detailed consideration of food vulnerability. However, in the operationalization of the framework, activities have largely been focused on food availability, access and utilization. There is a need to stress the dynamic, cross-cutting aspect of vulnerability/resilience, and the capacity of communities and households to adapt[4] using an approach to food security/resilience that takes into account "*social and ecological influences at multiple scales, incorporates continuous change, and acknowledges a level of uncertainty that has the potential to increase a system's resilience to disturbance and its capacity to adapt to change"*[5]. With the growing recognition of climate change impact on food systems and food security, addressing this gap is critical. By drawing upon FoodSTART's knowledge base, this project aims to provide a more robust RTC-based food security model with which to go to scale.

[2] Pingali, P., L. Alinovi, and J. Sutton (2005), "Food Security in Complex Emergencies: Enhancing Food System Resilience", *Disasters*, Vol. 29, S1, June, pp. S5-S24.
[3] FoodSTART 2014. A Food Security Framework for Root and Tuber Crops in the Asia-Pacific Region. Social and Health Sciences Working Paper 2014-2, CIP,Lima, Peru (In press).
[4] Hall, A and Clark, N (2010) What do complex adaptive systems look like and what are the implications for innovation policy? Journal of International Development J. Int. Dev. 22, 308–324 (2010)
[5] Resilience Alliance. 2010. Assessing resilience in social-ecological systems: Workbook for practitioners. Version 2.0. Online: http://www.resalliance.org/3871.php

II. RATIONAL, RELEVANCE AND LINKAGES

4) The overall purpose of this grant project is to promote the role of RTCs in reducing food vulnerability and enhancing resilience of poor male and female agricultural producers and consumers in the Asia-Pacific. Recent CIP and IFAD analyses underscore the longstanding contribution of RTCs in achieving food security among poor rural farming households in the Asia-Pacific. However, the agri-food systems of these local populations are under increased threat from a range of external environmental, biophysical and socio-economic risks and shocks, including deforestation, typhoons and flooding as well as financial and political crises. There is an urgent need to determine how RTCs can contribute to more stable food security over time through adaptive management strategies for enhancing food resilience.

A. CGIAR Research Program Links

5) This proposal is thematically aligned with CGIAR Research Program, Roots, Tubers and Bananas (RTB) (3.4) flagship projects for OFSP varieties for Asia and with the insertion of early-maturing potatoes in rice-wheat systems in Asia. These are also Strategic Objectives within CIP's new Strategic and Corporate Plan, and a third strategic objective, on food vulnerability and its transformation into resilience through the contribution of roots and tubers in agricultural systems prone to stresses and shocks in Asia and Latin America, was inspired by FoodSTART. This project is also aligned with 3 RTB cassava flagships on development of processing varieties, overcoming production constraints and stimulating small-scale cassava processing in the Greater Mekong. There is also important convergence and collaboration with 2 other CGIAR Research Programs, HumidTropics and Climate Change, Agriculture and Food Security (CCAFS), especially in the central Vietnam research site. FoodSTART+ will develop closer partnership with CIAT for the activities in Vietnam (which CIAT will lead) and on GIS/mapping and for cassava-related R4D in other target countries. There are also links with CGIAR Research Program HumidTropics in Hunan, China.

B. Contribution to SLOs and IDOs

6) The project will contribute to all 4 CGIAR SLOs: reducing rural poverty (SLO1), increasing food security (SLO2), improving human nutrition and health (SLO3) and sustainable management of natural resources (SLO4). It will contribute to IDOs 2, 3, and 4 of RTB (food security, better nutrition and poverty alleviation, respectively) and to IDOs 1, 2 and 4 of CCAFS (gender and social differentiation, adaptive capacity and food security, respectively).

C. Project contribution to goals, objectives and outputs of EC's Action Fiche

7) FoodSTART+ aligns well with the EC Action Fiche Objective and Purpose, which relates to testing innovative research approaches and putting results into use at scale to impact nutrition, resilience and sustainable agriculture. This will be done through the RTC-based research partnerships with IFAD investment projects that will be developed (as in the current FoodSTART project) which will facilitate both pilot and scale-up processes that contribute to resilience, improved food security/nutrition and livelihoods. FoodSTART+ outputs also align with EC Action Fiche outputs/results, in the following ways: Pro-poor scientific, technological and institutional innovations/knowledge (FoodSTART+ Outputs 3,4); Evidence of effectiveness to meeting food and nutrition security/resilience (FoodSTART+ Output 5); Capacity for pro-poor agricultural research and uptake enhanced (FoodSTART+ Output 4); R4D Partnerships established for more effective uptake of research results (FoodSTART+ Outputs 2-4); and, Improved

complementarities/synergies with national agriculture/food security programmes (All FoodSTART+ Outputs).

D. Project alignment with IFAD'S AR4D Grant Goals and Objectives

8) The project aligns well with IFAD's AR4D grant window and will contribute to resilient, sustainable and profitable RTC production systems for poor rural producers (the AR4D goal), especially through their equitable participation in value chains and improved natural resource management in a changing climate (key thematic areas). Attention to RTC technologies, instruments and institutions that help producers to become more resilient to climate change, while reimaging sustainable and productive is a vital task that the project will assume, in partnership with investment projects. Gender is also a key factor, and the project will ensure equitable access for women to innovations to be piloted and disseminated (as well as to youth and ethnic minorities, where relevant). The project is built around new partnerships that will be established with IFAD investment projects, based on the models already piloted in the current project, as a means to promote effective scaling up of piloted innovations.

E. Linkages with IFAD's Strategic Framework (SF) Objectives (2011-2015)

9) Through RTC-based interventions, FoodSTART+ comprehensively aligns with IFAD's SF goal of "*enabling poor rural people to improve their food security and nutrition, raise their incomes and strengthen their resilience*" in target countries of Asia. The project, in partnership with IFAD investment projects and country programs, will contribute to all 5 of the SF Objectives through a more climate change resilient NR base; access to services for reduced poverty and improved nutrition and incomes; profitable farm/non-farm RTC-based enterprise management; policy influence for the rural poor; and, a better enabling environment through evidence for policy decision making at local to national levels. Within IFAD's Asia-Pacific Division, the project is closely aligned with the current Country Strategic Opportunities Programmes which increasingly focus on enhancing the capacity of poor rural people to adapt to climate change.

F. Grant Complementarity with Rural Development Projects

10) Project activities will be designed to complement the workplans of IFAD investment projects and contribute to relevant IFAD country operations strategies. Based on lessons learned in FoodSTART, the new Component 4 (R&D action planning) will extend throughout the 3-year implementation period, to ensure that assessment and action research outputs contribute directly to the investment projects' own target deliverables to IFAD.

11) Research results from each project output are intended to be of immediate use to investment projects, and to country operations offices, as necessary. Relevance and usefulness of these results will be determined based on the stage of planning/design and implementation of each investment project. Scoping studies will inform and guide IFAD investment targeting for RTCs, assessments will identify potential RTC innovations that can be included in investment project workplans in partnership arrangements with FoodSTART+ that include resource sharing and expertise backstopping, while knowledge products will be shared across the region (and globally) for wider uptake and out-scaling.

III. IMPACT PATHWAY AND THEORY OF CHANGE

12) The theory of change that is visualized through the project impact pathway (Figure 1) is at a generic level and shows expected causal linkages between the FoodSTART+ outputs and the CGIAR's IDOs. The 5 outputs are discussed in more detail in a later section. Once we have

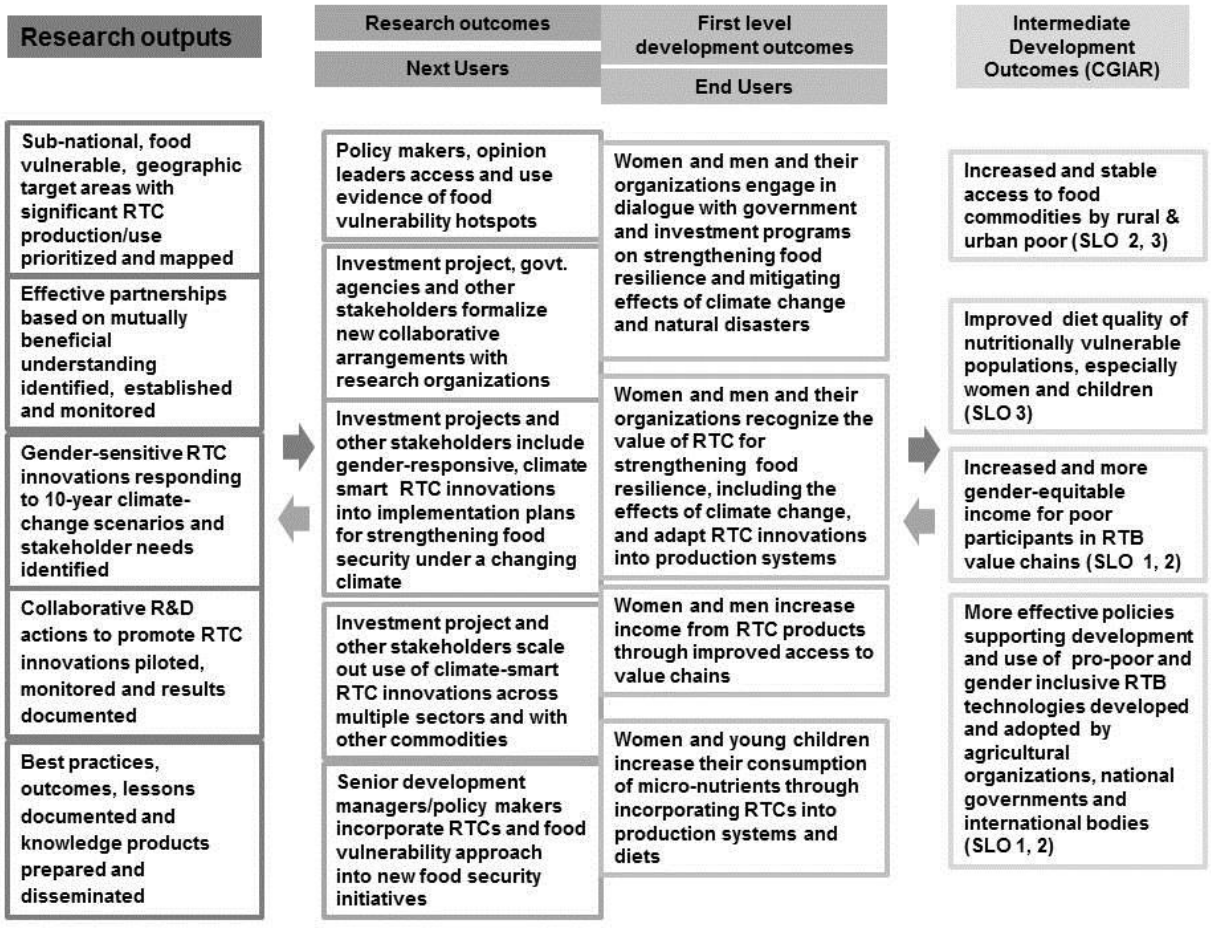
identified and prioritized the RTC innovations for piloting through action research, part of the implementation will include a participatory impact pathway appraisal[6] with stakeholders to identify the specific impact pathway for that site with a full theory of change including the assumptions underpinning causal linkages and the actor network relationships required to achieve the intermediate development outcomes.

IV. THE PROPOSED PROJECT

A. Project Goals and objectives

13) The project's overall **goal** is to enhance food resilience among poor households in upland and coastal communities of the Asia-Pacific region, through introducing RTC innovations, primarily within the framework of IFAD investments. The project **objective** is to identify gender-responsive needs and opportunities through vulnerability assessments among food insecure RTC producing and consuming households, and design and implement innovations with partners and local stakeholders that enhance food resilience. Further, the project will develop and validate effective partnership strategies with IFAD investment projects in promoting RTCs for food security at-scale.

Figure 1: FoodSTART+ Impact pathway



[6] Douthwaite, B., Alvarez, B.S., Cook, S., Davies, R., George, P., Howell, J., Mackay, R., and Rubiano, J. 2007. Participatory Impact Pathways Analysis: a practical application of program theory in research-for-development. *Canadian Journal of Program Evaluation* 22(2): 127–159.

B. The Target Group

14) The target group comprises poor rural households where RTCs currently/potentially contribute to food security, either directly, or via income generation. As part of this focus, we will identify the gender dynamics within households and communities as they relate to RTCs, in order to ensure equity in the benefits from proposed innovations. The project will also focus on opportunities for youth and be inclusive of ethnic minorities. As indicated in FoodSTART's food security framework, the food security concept embraces all levels, from individuals/households to nations and regions; this project will mainly focus on household and community levels, but will seek to influence national food security policies where possible.

15) Guided by the vulnerability index in the Inter-governmental Panel on Climate Change (IPCC) Fourth Assessment Report, a key reference in IFAD investment planning, the 2 key agricultural environments targeted for the proposed project in Asia-Pacific are upland and coastal communities that experience issues of food vulnerability from a range of on-going threats, and where RTCs' role in enhancing resilience has promising potential (Table 1).

16) FoodSTART+'s core target countries are China, Philippines, Indonesia, India and Vietnam. The first 4 countries are currently FoodSTART target sites; this proposed project targets new provinces/states to which RTC innovations and best practices in food security R&D could be adapted/out-scaled. In Vietnam, joint CIAT- CIP grant projects (2003-13) have collaborated with IFAD investment projects on RTC value chains.

Table 1: Target agro-ecologies, vulnerability threats and potential role of RTCs

Agro-ecologies	*Vulnerability threats to food security*	*RTCs' role in enhancing resilience*
Uplands, including tropical/sub-tropical highlands, from about 500 m.a.s.l, difficult terrain, with predominantly small-scale, rain-fed, biodiverse agriculture including shifting cultivation, livestock, mixed crop systems involving RTCs	▪ Rising temperatures ▪ Erratic rainfall patterns, less reliable streamflows ▪ Natural resource degradation, declining soil fertility with intensification of agricultural production systems, erosion ▪ Increasing pest pressure through temperature and rainfall changes ▪ Remoteness from major markets increasing costs of imported food ▪ Migration affecting food production ▪ Social exclusion	▪ Tolerance to abiotic and biotic stresses ▪ Food production during off-season for cereals/other staple crops ▪ Low nutrient demands and high per unit productivity ▪ Non-intensive labour demands of RTCs ▪ Alternative income source from local products
Coastal zones, involving low-lying exposed continental areas and especially remote islands, involving mixed agriculture-aquaculture systems including RTCs, prone to flooding and exposed to typhoons	▪ Increased soil salinity ▪ Rising sea levels/inland storm surges ▪ Tropical cyclones/ extreme weather disturbances ▪ Remoteness of island states leading to high costs of imported food	▪ Tolerance to abiotic and biotic stresses ▪ 'Cyclone tolerance' (sweetpotato) ▪ Disaster-proof local food reserve ▪ Early-maturing crops for immediate food supply ▪ Diversification of food security options for coastal fishing-dependent communities Low nutrient demands and high per unit productivity ▪ Alternative income source

17) Thus, the proposed project seeks to capitalize on the already established partnerships with IFAD and national partners, while facilitating more cost-effective field operations through FoodSTART's existing operations in the country (Table 2). An additional 3 scoping studies will be completed in other countries/provinces where potential for RTCs is high, but where there is less current congruence with IFAD investment projects. This effort will support IFAD country offices in preparation of COSOPs and the design of new investment projects. This will include at least one South Pacific island country (eg. PNG, Fiji or Kiribati), and up to 2 of the following: Mekong

delta region of Vietnam, Laos or Myanmar, or potentially 1-2 of the watersheds covered by INREM in Philippines. The project has the potential to contribute to the target outputs/outcomes of these investment projects:

Table 2 Geographical targeting of core sites

Country	*Geographic Target*	*Investment Project*	*Agro-ecol*	*RTCs*	*Comment*
China	Hunan	HARIP	Upland	*P, SP*	Additional grant for RTCs
Philippines	Eastern Visayas	FishCORAL	Coastal	*SP, A*	Affected by typhoon Haiyan
Vietnam	HaTinh-Quang Binh	SRDP	Upland & coastal	*SP, C*	Site for CCAFS climate smart village; coastal floods
Indonesia	Maluku	SOLID	Coastal	*C, SP*	Capacity building via FoodSTART-Papua in 2012
India	NE states	NERCOMP	Upland	*P, A, Y*	Meghalaya in FoodSTART, plan for expansion to new state in FoodSTART+

P = potato, C = cassava, SP = sweetpotato, A = aroids, Y = yam.

C. Strategy, Approach and Methodology

18) In order to address newly emerging opportunities in IFAD's investment landscape for Asia-Pacific, whilst ensuring that preliminary lessons from FoodSTART fully benefit this project, we propose rapid action-research to:
    a) Refine and validate existing FoodSTART partnership strategies with new/on-going IFAD investment projects, so as to incorporate RTCs in "going to scale" strategies for food resilience and security.
    b) Manage effect of climate variability (especially extreme weather events) that increasingly threatens on-farm productivity of key food crops including RTCs.
    c) Support agricultural livelihood rehabilitation of disaster-prone communities where RTCs play a critical role as buffer/crisis crops, including vulnerable communities in both pre- and post-disaster situations.
    d) Ensure that results of RTC-R4D at local/community level feeds into national food security plans and policies, to complement earlier efforts in policy influence and public awareness-raising around RTCs, including nutritional attributes and potential.
    e) Ensure that food resilience incorporates a judicious balance between income generation and local (household, community) food consumption/nutrition goals, especially in disaster-prone areas.
19) The proposed project will draw upon and further refine the food security framework and assessment methodologies earlier developed and field-validated by FoodSTART. In particular, it will elaborate new methods to better address food vulnerability, drawing on existing literature and experience in relation to asset-based and livelihood approaches[7], social risk management[8], food insecurity and the Twin Track approach[9] and the use of risk management derived from finance and banking[10] It will also apply and extend partnership models with IFAD investment projects which have emerged from earlier FoodSTART experiences. The proposed project will generate

[7] DfID, 1999. Sustainable Livelihoods Guidance Sheets. Department for International Development, London, UK.
[8] World Bank, 2005. Afghanistan, Poverty, Vulnerability and Social Protection: An Initial Assessment. Human Development Unit, South Asia Region, Report No. 29694-AF, Washington DC.
[9] Løvendal, Christian Romer and Marcdo Knowles, 2005. Tomorrow's Hunger: A framework for analysing vulnerability to food insecurity. ESA Working Paper No. 05-07, Agriculture and Development Economics Division, FAO, Rome.
Pingali, P, L. Alinovi and J. Sutton, 2005. Food Security in complex emergencies: enhancing food system resilience. *Disasters*, 29(S1).
[10] Saramonzzino, Pasquale, 2006. Measuring Vulnerability for Food Insecurity. ESA Working Paper No. 06-12. Agricultural and Development Economics Division, FAO, Rome.

additional empirical evidence, field experiences to contribute to FoodSTART's knowledge product development and efforts in wider public awareness and policy influence. It will also contribute to the general pool of knowledge on RTCs-for-food security in the Asia-Pacific.

D. Programme Outputs and Activities

20) For each output, we identify several activities for which a brief description is provided with quantifiable indicators (Table 3). For more detail on means of verification of indicators and assumptions, see Annex 1.

Table 3 Outputs, activities and activity descriptions for the proposed project

Activity	Activity Description	Indicators
Output 1. Subnational geographic target areas combining food vulnerability with significant RTC production and use are prioritized and mapped		
1.1. Scoping studies (8), based on research sites/investment projects identified in proposal	Reviews of secondary information, other relevant R4D actors including CGIAR Research Programs, key local government, private sector and NGO informants, supplemented by rapid appraisals where necessary.	8 scoping studies completed
1.2. Development of RTC-suitability maps based on climate and land use change scenarios,	Downscaling current regional climate change/crop suitability and land use change maps to investment project level, with focus on sites where RTC has potential food security role, and combined with participatory ground-truthing with key RTC R4D communities. Activity to be led by CIAT-Asia (Hanoi office) GIS/mapping team.	1 regional map and 5 detailed maps of focus site areas
1.3. Cross learning from previous FoodSTART project	FoodSTART project launch meeting in Baguio, Philippines to be combined with final meeting for current FoodSTART project in January 2015, to provide opportunity for new R4D activities to learn from the past 4 years of collaboration with IFAD investment projects. The IFAD investment project in Cordillera region (Baguio City) (CHARMP2) is planning other RTC related activities to coincide with this event (e.g. Farmer Business School launch of new businesses). An opportunity also to engage with RTB and CCAFS programs, and with CIP's strategic objective on food vulnerability/resilience.	1 launch meeting
1.4. Literature review and assessment of approaches to food vulnerability and resilience	We will review numerous different currents of thinking and application of food vulnerability and resilience approaches in the literature on emergencies and development interventions in the light of the FoodSTART food security framework for application in FoodSTART+.	1 literature review on food vulnerability/resilience
1.5. Selection of 5 research (focus) sites linked to IFAD investment projects, for development of R4D action in subsequent outputs.	Selection will be based on results of scoping studies (Activity 1.1) and subsequent interactions with IFAD country offices, the investment projects concerned and relevant wider CGIAR programs (RTB, CCFAS). The selected projects will include upland and/or coastal ecologies. Potential involvement with country programme activities: COSOP development and investment project design missions will also be finalised at this stage (see Activity 2.1).	5 benchmark sites selected and investment project partners identified for future collaboration
Output 2. Effective, mutually beneficial, R4D partnerships identified, established and monitored		
2.1. Participation in relevant country COSOPS and investment project scoping and design missions	This fosters engagement with IFAD's country programs in the Asia-Pacific region, and assists incorporation of the results of the current FoodSTART project into future investments. This mechanism will be especially useful in the Pacific region, where there are not yet investment projects fitting FoodSTART+. It could also serve as a means to expand the outcomes of FoodSTART to other countries in the region (e.g. Laos, Myanmar, Nepal, Sri Lanka). FoodSTART+ will allocate limited funds to support this engagement with IFAD country offices. Additional co-funding at country	3 IFAD country COSOPs and investment project design missions that prioritize or incorporate RTC food resilience (in collaboration with IFAD country programs/offices

	level will be required to maximise the potential of this mechanism across the region. This support could also take the form of additional scoping studies as inputs to COSOP and project design, using methods of Activity 1.1.	
2.2. Rapid review of appropriate partnership mechanisms and modes of collaboration with IFAD investment projects	A review of previous FoodSTART experiences and relevant cases across IFAD and other agencies in collaboration with CIP's Social and Health Sciences program will identify potential partnership mechanisms compatible with IFAD, CGIAR and individual country regulations/policies. A number of options will be developed, with the aim of piloting at least 2 modes of cooperation between FoodSTART and investment projects. These could include (a) secondment of CIP or CIAT personnel, or staff of national partner research agencies, to work with investment projects on-site, and/or (b) secondment of nominated staff of investment project implementing agencies to FoodSTART. In order to ensure close R4D collaboration in the field.	3 partnership mechanisms reviewed 2 high potential partnership options selected for pilot testing
2.3. Workshops in target sites to agree on mutually beneficial partnership and engagement process for FoodSTART+ implementation	With individual IFAD investment projects and country offices, national research partners and other relevant stakeholders (e.g. private sector where relevant). Outputs are partnership agreements or contracts (depending on mechanisms selected) with development of annual agreed workplans covering both FoodSTART and investment project supported actions. Other research agencies will be involved as appropriate to ensure capacity building, field level activity implementation	4 comprehensive partnership/collaboration agreements or contracts with IFAD investment projects and other partners
2.4. Monitoring of evolving partnership	Via annual "health checks" by project coordination unit using a qualitative tool with Liekert scale (satisfaction scores) covering common vision, partner roles, information flows, communication and conflict resolution practices (developed by CIP in Africa)	3 "partnership health check-ups" completed with positive results. Feedback from 3 investment project supervision missions on status of project partnerships
2.5. Establishment and operation of a technical working group to advise and contribute to design and conduct of Outputs 3-5	Up to 5 R4D experts with wide experience of food resilience/security issues, root and tuber crops, the Asian rural development context, gender and climate change invited to constitute a technical working group that will both advise and contribute to project activities and outputs. An initial meeting of the working group will be held alongside the project launch meeting (Activity 1.3). The working group will convene during FoodSTART+ annual meetings with a specific agenda related to ongoing activities where input is required. In addition, individual members will be tasked with specific contributions to ongoing activities on a mutually agreed basis, based on their technical expertise, as and when requested by the project	1 TOR for the technical working group (TWG) agreed and implemented Minutes of 3 meetings of TWG with recommendations Input from TWG of 3 Aide Memoire of supervision missions
Output 3. Gender-sensitive RTC innovations that respond to 10-20 year climate-change scenarios and expressed needs of stakeholders are identified		
3.1. Design of efficient and effective assessment process and instruments, based on previous FoodSTART experience and the increased focus on the dynamic aspects of food security (vulnerability-resilience in time)	Technical workshop with FoodSTART team (including those located in-country with investment projects) and the technical working group to design assessment instruments for understanding changes in food security and causal factors and the role of RTCs in contributing to increased resilience in target research sites/communities, and for identification of problems and opportunities for action in Output 4. The workshop will also develop a process and workplan for implementation of the assessments. Both instruments and process will take advantage of lessons learned in FoodSTART, to gain efficiency and focus. Where possible, synergies with on-going assessments of other CIP and CIAT projects under RTB or CCAFS will be sought.	1 workshop, producing 1 report with assessment process guideline and specific instruments (number to be determined in workshop, depending on process)

3.2. Implementation of assessments in focus sites	Implementation of assessment workplans agreed in Activity 3.1. and operationalized through the investment project R4D partnership mechanisms developed in Output 2.	5 assessments completed
3.3. Assessment reports that identify needs and opportunities for enhancing food resilience of focus site communities	Analysis and reporting of the assessments at investment project level, according to agreed templates that facilitate subsequent cross-site analysis.	At least 5 capacity building events held (one per focus site) and 2 cross-learning visits
Output 4. R4D actions to promote RTC innovations implemented, monitored and results documented		
4.1. Stakeholder consultations in focus sites to develop action plan for implementation of innovations based on assessment results (compatible with workplans of investment projects)	Workshops held at each R4D site to engage community (RTC producers, value chain actors, service providers, development and research agencies etc.) in defining (a) priority problems and opportunities and then (b) potential interventions/innovations to be piloted, with action plans that define roles and responsibilities of the various parties agreed. This activity needs to be compatible with the planning cycles of the individual investment projects.	5 stakeholder consultations completed and 5 action plans developed
4.2. Action plan implementation	Implementation of action plans, comprising piloting of technologies (e.g. improved varieties, crop management practices, planting material provision, processing improvements), marketing/commercial and institutional arrangements and also R4D methodologies such as Participatory Market Chain Approach (PMCA) and Farmer Business Schools (FBS). Specific attention will be paid to resolution of food insecurity, enhanced nutrition of vulnerable populations and climate change resilience. Action plans will be renewed annually.	5 action plans implemented with detailed sub-indicators developed and monitored
4.3. Capacity building of investment project implementers	The project will co-finance capacity building of implementing agency staff of the investment projects, through a) specific events related to action plan priorities where local capacity is limited and (b) individually tailored cross-learning visits to other FoodSTART+ project sites that require international travel.	At least 5 capacity building events held (one per focus site) and 2 cross-learning visits
4.3. M&E plan developed and implemented.	An M&E plan that documents process as well as milestones and results of action research with next users (investment projects, implementing agencies etc.) will be developed with partners for each R4D site/investment project. Indicator development will take place during the inception workshop and these will be used by project staff for qualitative and quantitative data collection as required (additional to that collected by the investment project itself). Note that monitoring of the end user outcomes of both pilot and scaled-out action research will be undertaken by each investment project using appropriate RIMS indicators.	1 M&E plan developed, with development indicators agreed with each investment project
Output 5. Field-based best practices, outcome stories and success factors are documented and disseminated to support IFAD, CIP and wider national and regional policy development		
5.1. Communications and engagement plan developed for target audiences	The communications and engagement plan will be developed through (a) an initial session in the project launch meeting followed by (b) discussions and needs assessments with target investment projects, IFAD country offices and other stakeholders during conduct of Output 2 and (c) inputs from the technical working group. The plan will identify the main audiences and the strategies and means to engage with them.	1 Communication plan
5.2. Cross–site synthesis by project coordination unit with Technical Working Group	The salient conclusions, lessons learned and success factors relating to enhancing the contribution of RTCs to food resilience will be determined through cross- site synthesis and analysis of information from both the initial assessments and the results of action research with investment projects, via project team online discussions and workshops with the Technical Working	1 publication of cross-project synthesis/analysis developed from two workshops

	Group.	
5.3. knowledge product development and publication	A range of web-based and hard copy publications will be developed to disseminate results at both investment project/country and project-wide levels, according to needs determined in the communications and engagement planning process.	At least 1 hard copy publication per site (ie 5) plus at least 2 project-wide publications, also available online. Additional short topic-specific briefs (at least 10) will be produced for online publication
5.4. Implementation of communications and engagement plan	To include events at investment project level, taking advantage of relevant meetings organised by other programs/agencies, in addition to those held specifically for this purpose. These will include the periodic meetings of IFAD country programmes and RTB and CCAFS regional programmes to facilitate scale-out to other investment projects and CGIAR initiatives, and to contribute to other national forums where IFAD is engaged.	Participation in at least 3 IFAD country-level meetings per focus site country, and in relevant RTB and CCAFS meetings (total 5) during lifetime of the project
5.5. Seminars/workshops for policy makers	At the conclusion of the project, workshops/seminars will be organised at country level to disseminate project results to policy makers and institutions in the agriculture, food security, nutrition/health and climate change sectors/areas	5 country-level cross-sectoral workshops/seminars targeting policy makers

E. Project Implementation by Output

21) The envisage undertaking both sequential and parallel activities to produce the outputs (Table 4)

Table 4 Chronogram of proposed project by outputs

Output	Year 1		Year 2		Year 3	
	Mo 1-6	Mo 7-12	Mo 1-6	Mo 7-12	Mo 1-6	Mo 7-12
1. Project start-up, scoping studies	X					
2. Partnership development	X					
3. Assessments, needs/opportunities		X	X	X		
4. R&D action planning and launching		X	X	X	X	X
5. Documentation and KP development			X	X	X	X

Note: mapping activities (activity 1.2.) will continue into Year 2.

V. PROGRAMME IMPLEMENTATION ARRANGEMENTS

A. Implementation, Organization and Management

22) The programme will be led by CIP from the Philippines country office, same as the current FoodSTART project. A Steering Committee will comprise of representatives of (a) IFAD country programmes and investment projects (b) national research institutions (c) CIP and CIAT. The programme will be managed by a regionally posted senior scientist and assisted by a full-time regional research fellow/scientist. The Social and Health Sciences Leader at CIP headquarters will provide scientific oversight to the programme. CIP's R&D responsibilities cover potato, sweetpotato, and other RTCs, while CIAT's Asia office (based in Hanoi, Vietnam) will provide support for cassava-related activities, and lead for activities in Vietnam and GIS/mapping (Activity 1.2). A Technical Working Group comprising experts in Asian rural development, food security, RTCs, gender and climate change will be established to provide advice and specific

contributions to activities as determined by the project manager. The activities undertaken in the field research sites (Outputs 3 and 4) will be undertaken in partnership with IFAD investment projects under mutually beneficial partnership mechanisms, to be determined under Output 2. Appropriate national or provincial research institutions will be contracted for specific contributions to action research under Output 4.

B. Monitoring, Evaluation and Reporting

23) The project's monitoring and evaluation (M&E) will be at the level of next users (see Figure 1: impact pathway), i.e. the investment projects and local institutions/agencies in R4D/investment project locations, and will follow the M&E plan developed in Activity 4.3. During the targeting and assessment stage (outputs 1-3) the Project team will ensure that the study methodology is correctly implemented at all field sites using a common approach. Development outcomes (i.e. with end-users) will not be directly monitored by the project team, but will benefit from the M&E undertaken by each investment project, as regards the specific communities where RTC innovations have been piloted and/or scaled-out. Care will be taken to capture spin-off outcomes from application of project methodologies, such as FBS and PMCA to other non-RTC commodities.

24) The project will provide regular 6-monthly reports using the current IFAD format, annexing relevant documents specified as indicators in the project logframe. Annual project workshops will be organized with key stakeholders to share and interpret findings, modify methodology, and to engage stakeholders in scaling-out processes. This will be timed to coincide with IFAD supervision missions. A final project meeting will be held as a contribution to project evaluation. It is important that M&E effectively contributes to stakeholder learning. Attention will be paid to adapting communications to the specific competencies and needs of each stakeholder group, from local community (disaggregating by sex) to national policy levels. IFAD supervision of this programme will be linked to CPM/CPO supervision of each of the investment projects and countries covered/supported by the programme.

VI. PROJECT COSTS AND FUNDING

VII. FINANCIAL GOVERNANCE

A. Procurement Procedures for Goods and Services

25) CIP's policies and guidelines for procurement of goods and services are based on (1) CGIAR Financial Guidelines Series No. 6—Procurement Guidelines and (2) CIP's Operational Policies and Procedures (OPPS) Manual section 2.5.4. (manual available upon request).

B. Financial controls

26) All records and accounts are managed in accordance with CGIAR Financial Guidelines Series No. 1 (Financial Management). In addition, CIP prepares annual financial statements in accordance with CGIAR Financial Guidelines Series No. 2 (Accounting Policies and Reporting Practices).

C. Accounting Specifications

27) CIP manages its finances through AGRESSO, a web-based, multi-currency, accounting system with an elaborate chart of accounts. Restricted grants to CIP are managed in separate cost centers within this financial information system. These cost center permit access to expenses at any stage of grant execution. The cost centers are set up with financial controls which ensure execution of

the grant in accordance with each donor agreement. Expenses are recorded within each cost center under line items.

D. Audited Financial Statements and Audit Reports

28) CIP's Board of Trustees evaluates and appoints an internationally reputed audit firms on a competitive basis to audit its books of accounts. CIP's accounts and annual institutional financial statement is externally audited in accordance with CGIAR financial guidelines series No. 3 (Auditing Policies). Auditors perform their audit function to ensure that the financial statements are prepared in accordance with the CGIAR Financial Guidelines and conduct their audit in accordance with the International Standards on Auditing. Copies of the audited institutional statement are distributed to all donors.

29) CIP currently has nearly 90 restricted grants from a number of international donors. Individual financial statements are prepared for all grants executed by CIP. Grants which require individual audits have financial statement audited by our internationally accredited external auditors. These financial statements are submitted to donors in a timely fashion.

1: RESULTS-BASED LOGICAL FRAMEWORK

Objectives/Outputs	Indicators/targets	Verification	Assumptions
Goal: To enhance food resilience among poor households in upland and coastal communities of the Asia-Pacific region, through introducing RTC innovations primarily within the framework of R4D partnerships with IFAD investments.			• Macro-economic and socio-political environment in target countries/ project locations is conducive to implementation of the project.
Objectives: To identify gender-responsive needs and opportunities through vulnerability assessments among food insecure RTC producing and consuming households, and design and implement innovations with partners and local stakeholders that enhance food resilience. Further, the project will develop and validate effective partnership strategies with IFAD investment projects in promoting RTCs for food security at-scale.	• Partnerships with investment projects have resulted in increased emphasis on RTCs to enhance food security in vulnerable communities, as indicated by (a) documented changes in crop/commodity priorities that benefit RTCs and (b) the number of RTC-based interventions developed and implemented by partners	• Partnership agreements/contracts with investment projects • Investment project reports and evaluations • Project reports	• Investment projects commit to partnership with CIP • Investment projects are willing and able to adjust priorities in the light of the findings of scoping and assessment studies that justify more investment in RTCs.
Output 1: Subnational geographic target areas combining food vulnerability with significant RTC production and use are prioritized and mapped	• 8 scoping studies completed • 5 benchmark sites selected and investment project partners identified for future collaboration • 1 regional map and 5 detailed maps of focus site areas • 1 launch meeting • 1 literature review on food vulnerability/resilience	• Project reports and annexes • Maps • Review report and recommendations	• Adequate secondary information available, including RTC production statistics.
Output 2: Effective, mutually beneficial, R4D partnerships identified, established and monitored	• 3 IFAD country COSOPs and investment project design missions that prioritise or incorporate RTC food resilience (in collaboration with IFAD country programmes/offices) • 3 partnership mechanisms reviewed	• COSOP and investment project design documents • Agreements/LOAs/workplans with investment projects • Partnership Check-up Reports	• Relevant COSOP and investment project design processes fall within the timeline of Output 1 • Competent project staff to

Objectives/Outputs	Indicators/targets	Verification	Assumptions
	• 2 high potential partnership options selected for pilot testing • 4 comprehensive partnership/collaboration agreements or contracts with IFAD investment projects and other partners • 3 "partnership health check-ups" completed with positive results • Feedback from 3 investment project supervision missions on status of project partnerships • 1 TOR for the technical working group (TWG) agreed and implemented • Minutes of 3 meetings of TWG with recommendations • Input from TWG of 3 Aide Memoire of supervision missions	• Supervision Mission Aide-Memoires	build partnerships with investment projects • Investment project management and staff and IFAD country officers committed to establishing and implementing novel partnership arrangements • Basis for mutually beneficial agreements exists • Partner implementation (stage of project) permits establishment of partnerships
Output 3: Gender-sensitive RTC innovations that respond to 10-year climate-change scenarios and expressed needs of stakeholders are identified	• 1 workshop, producing 1 report with assessment process guideline and specific instruments (number to be determined in workshop, depending on process) • 5 assessments completed • 5 assessments analysed and reported	• Project reports and annexes • Climate change scenarios (maps)	• Logistical support from investment projects as necessary • Collaboration with GIS/mapping expertise secured at national and CGIAR levels.
Output 4: R4D actions to promote RTC innovations implemented, monitored and results documented	• 5 stakeholder consultations completed and 5 action plans developed • 5 action plans implemented with detailed sub-indicators developed and monitored • At least 5 capacity building events held (one per focus site) and 2 cross-learning visits • 1 M&E plan developed, with development indicators agreed with each investment project	• Project monitoring reports • IFAD supervision mission Aide-Memoires • Project-commissioned evaluation reports of specific interventions • Investment project M&E reports and supervision missions (using relevant RIMS indicators to be mutually agreed)	• Conditions on the ground conducive to implementation • Reasonable level of field staff effort, continuity and competence in investment projects during implementation
Output 5: Field-based best practices, outcome stories and success factors	• 1 Communication plan • 1 publication of cross-project	• Communications and engagement plan	• Outputs and outcomes of the project are of sufficient

Objectives/Outputs	Indicators/targets	Verification	Assumptions
are documented and disseminated to support IFAD, CIP and wider national and regional policy development	synthesis/analysis developed from two workshops • At least 1 hard copy publication per site (ie 5) plus at least 2 project-wide publications, also available online. Additional short topic-specific briefs (at least 10) will be produced for online publication • Participation in at least 3 IFAD country-level meetings per focus site country, and in relevant RTB and CCAFS meetings (total 5) during lifetime of the project • 5 country-level cross-sectoral workshops/seminars targeting policy makers	• Project reports • Synthesis Publication • New proposal documents • Workshop/seminar reports	relevance, degrees and scale to warrant documentation and publication; and design of follow-on projects.

ANNEX 2: PARTNERSHIP LETTER

CIAT
Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture
Consultative Group on International Agricultural Research

Eco-Efficient Agriculture for the Poor

26 May 2014

International Fund for Agricultural Development (IFAD)
Asia-Pacific Division
Rome, Italy

Subject : *Letter of support to joint CIP-CIAT grant proposal*

Sir/Madam:

In behalf of the International Center for Tropical Agriculture (CIAT) Asia Program, I am pleased to write this letter of support to the grant proposal "Food Resilience Through Root and Tuber Crops (RTCs) in Upland and Coastal Communities of the Asia-Pacific (FOODSTART+)".

The proposal has been developed by CIP in close collaboration with CIAT-Asia, and we look forward to the opportunity for inter-Center partnership in pursuing our shared research agenda on RTCs for food resilience in the region.

Sincerely,

Dr. Dindo Campilan
Director for Asia